

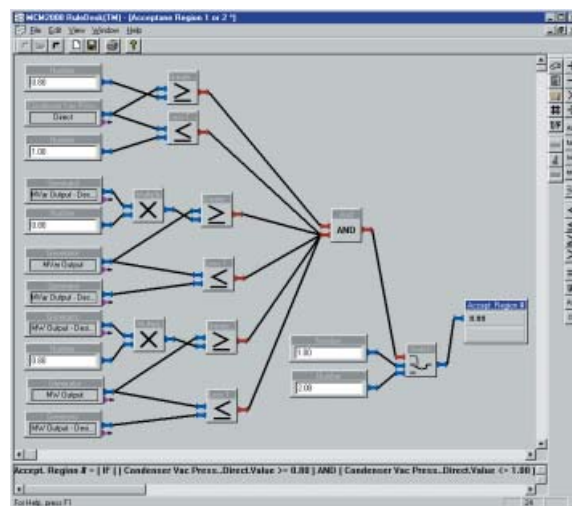
New Product Showcase

In this regular department of *ORBIT*, we feature new products as well as improvements to our existing products. More information is available in our online version of *ORBIT*. Be sure to check it out at www.bently.com. You'll find not only the complete

contents of the printed edition, but you'll also have access to longer versions of selected articles (such as those below), product datasheets and brochures, and other resources related to these great new and enhanced products.

RuleDesk™ Enhances Machine Condition Manager™ 2000 Software with Revolutionary Custom Rule Creation Capabilities

While you've always been able to customize Machine Condition Manager™ 2000 (MCM2000) software's advisories when it detects a malfunction, you haven't been able to define your own rules for the types of malfunctions detected – until now! With the addition of RuleDesk™ capabilities to MCM2000 software, rule creation is a snap. If you can define a rule, RuleDesk's highly graphical environment lets you easily write it and enter it into your database, along with our default rule set and knowledge base. No special programming skills are required – rule creation is as easy as drawing a block diagram. Learn more about this powerful new tool in our feature-length article beginning on page 52.



Trendmaster® 2000 Goes Wireless with Addition of RF Bridge System

The 1989 release of Trendmaster® 2000 pioneered the development of online monitoring for those machines and assets that warrant more than portable data collection, yet do not justify a more expensive approach. The latest in our ongoing efforts to improve its utility is the Trendmaster® 2000 RF



Bridge System. It adds wireless capabilities that significantly reduce installation costs, making it easier than ever to provide online monitoring for a variety of machinery and non-machinery assets.

Up to 60 transducers and their corresponding Transducer Interface Modules (TIMs) are mounted on the machine, as with a conventional installation, and wired



together using Trendmaster® cable. However, instead of running cable all the way back to the host computer, the installation can now be terminated in a remote radio that communicates with a base station located at the host computer. Up to 60 remote radios can be supported by a single base station, providing a wireless network of up to 3600 measurement points in a single host computer. The host computer can also accommodate up to 2040 conventionally wired points, for a total system capacity of 5640 measurement points.

The RF Bridge System operates in the 2.4 GHz ISM band, allowing for license-free use and worldwide compliance. Frequency-hopping spread spectrum technology ensures maximum resistance to noise, multipath fading, and interfering signals. Omni (non-directional) antennas are used for shorter distances (0.4 kilometers, or 1300 feet, nominal; up to 0.8 kilometers, or 2600 feet, if within line-of-sight); Yagi (directional) antennas are employed for longer distances (16 to 24 kilometers, or 10 to 15 miles). If necessary, optional repeaters can be used to extend the range or circumvent particularly dense obstructions.

For more details about the Trendmaster® 2000 System and its new RF Bridge capabilities, please see the online version of this article for a link to a complete product brochure, as well as links to a datasheet and e-mail contacts for product questions.

HydroView™ Software – Improved Insight for Hydroelectric Generators

Last year, Bently Nevada acquired the HydroScan® family of technologies from MCM Enterprise, Ltd. (See “Hydroelectric Solutions Expanded with Acquisition of HydroScan® Technology,” *ORBIT*, Second Quarter 2000, Vol. 21 No. 2, p. 32.) This significantly improved our ability to monitor the mechanical condition of large hydroelectric machinery by adding technologies specifically focused on the condition of the generator, such as air gap and thermal mapping of windings. Since then, we’ve engaged in an ambitious effort to integrate that product line with Bently Nevada’s existing products. One of our first efforts has been to re-package MCM’s popular WinScan® software, improve its robustness, and provide it with all the technical support you’ve come to expect from Bently Nevada. We’ve also given it a new name – HydroView™ software – to better reflect its role in providing a complete view of your hydroelectric turbine/generator equipment.



HydroView™ software includes the following user displays for monitoring and diagnosing hydro generator conditions:

- Partial Discharge Locator (PDL) – By revealing the *location* and *degree of deterioration* taking place throughout the entire stator, PDL information allows you to tailor repairs for maximum winding performance.
- Thermal Maps – By providing a highly resolved, color-contoured temperature map of the entire stator bore, early detection of anomalous thermal patterns is possible. This is instrumental in preventing serious and costly generator failures.
- True Air Gap – This display provides not only the measurements of the *actual air gap*, but shows *how the shapes are changing* due to concrete growth, core/frame separations, or floating rotor rims.
- Trend Plots – These can be used to reveal *developing* abnormal conditions that are frequently undetectable using conventional monitoring techniques.

In addition, HydroView™ software allows remote access and viewing of generator information and displays. This capability allows continual surveillance from remote locations, facilitating completely unmanned operations.

Along with the new name are plans for a series of important future enhancements, including full integration with System 1™. We’ll provide more information on HydroView™ software and its role in protecting and managing hydro-electric machinery in the next issue of *ORBIT*, with the multi-part article “Hydro Monitoring 101.” Be sure to watch for it.

More information, such as a product datasheet and e-mail contacts for questions, is available in the online edition of ORBIT at www.bently.com or by contacting your nearest Bently Nevada office.

Two New Proximitor® Transducers Now Support 3300 XL NSv™ (Narrow Side View) Probes

In some machines, our standard 5 mm and 8 mm proximity probe system cannot be used because counterbore, side view, or rear view is less than the minimum required by these probes. In other machines, the rotor or target area is smaller than recommended, or the probe locations have insufficient spacing necessary to prevent cross-talk interference. These situations often occur in centrifugal air compressors, small process gas compressors, and other machines with tight installation requirements.

The 3300 NSv™ probe system was developed specifically to address these situations. Its smaller eddy current field allows it to be used where probes with larger fields cannot. The NSv™ probe is our most accurate when measuring radial vibration on shaft diameters as small as 30 mm (1.2 in). With its reduced sensing area, target diameters as small as 13 mm (0.5 in) can be measured with minimal effect on the scale factor.

While the NSv™ probe and extension cable have been available for over a year, we have only recently introduced an updated version of the Proximitor® module supporting these probes. It significantly enhances the performance available from the probe, while offering a new DIN-rail mounting option. Two versions exist: The **3300 XL NSv™ Proximitor® Module** supports most applications of the NSv™ probe, such as with 3300 and 3500 Series Machinery Protection Systems. The **170150 Dual Proximitor® Module** is specifically designed for users of our FieldMonitor™ Machinery Protection System. It plugs into a FieldMonitor terminal base and provides dual Proximitor® functions for up to two NSv™ probes and their associated extension cables.

More information is available in a longer version of this article in our online edition of ORBIT at www.bently.com or by contacting your nearest Bently Nevada office.



3300 XL Rotary Position Transducer System Offers Superior Valve Position Measurements

A Turbine Supervisory Instrumentation (TSI) System for steam turbine generators normally includes position measurement of the governor valves to assist in determining steam flow. Knowledge of the valve position provides an indication of turbine load while the generator is online and is useful for determining operating efficiency.

While rotary potentiometers have traditionally been used for this measurement, they have a history of poor reliability. The slider mechanism in the potentiometer tends to wear out, and they can stick. Frequent replacement is required, representing both additional cost and deterioration in operator confidence in the measurement.

To provide a more reliable measurement, Bently Nevada has developed an innovative rotary position transducer (RPT). The new 3300 XL RPT is self-contained, employing a non-contacting eddy current proximity probe (3300 XL) to view a precisely machined, eccentric cylinder that rotates with valve position. As the steam turbine control valve opens or closes, the valve shaft and the 3300 XL RPT cylinder rotate. Probe gap varies with cylinder rotation and the transducer system provides a corresponding linear output.

All components are designed to provide a stable output in ambient temperatures up to 177 °C (351 °F). It is ideal for the high temperature conditions common near the end of the valve control shaft on most steam turbines. Also, because eddy



current transducer systems use non-contacting technology, they do not experience wear due to friction. The absence of contacting parts also prevents the transducer from “sticking.” The result is a more robust and reliable transducer for this important measurement. The new transducer is compatible with Bently Nevada 3500 Monitoring Systems. 3300 Systems are supported as well, via a special modification to the 3300/70 Valve Position Indicator.

More information is available in a longer version of this article in our online edition of ORBIT at www.bently.com or by contacting your nearest Bently Nevada office.

FieldMonitor™ Enhancement Makes Intrinsically Safe Installations Even Easier

A set of new products in the FieldMonitor™ (1701) family is now available for applications requiring intrinsically safe transducers.

FieldMonitor™, a distributed vibration monitoring system, integrates with programmable logic controllers (PLC®'s), distributed control systems, and PC-based control systems over standard industrial networks. It is specifically designed to meet the needs of OEMs and packagers of standardized, skid-mounted machinery. Previously, users requiring intrinsic safety had to install separate external safety barriers and were also unable to take advantage of installation and wiring cost savings by using the FieldMonitor™ system's internal Proximitor® sensors. The new Isolator Terminal Base (model 1701/06) and the 170190 Dual Galvanic Isolator eliminate these shortcomings.

The 1701/06 Isolator Terminal Base (ITB) works with all standard 1701 components, including network adapters and the FieldMonitor™ Management Interface Module. The 170190 Dual Galvanic Isolators plug directly into the ITB.

The addition of intrinsically safe transducer capabilities is a critical step in further reducing installation costs and expands the range of the system's capabilities.

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